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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,525	07/24/2003	Sang Seok Lee	8733.871.00-US	8162
30827	7590	11/15/2005	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			SCHATZ, CHRISTOPHER	
			ART UNIT	PAPER NUMBER
			1733	
DATE MAILED: 11/15/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/625,525

Applicant(s)

LEE ET AL

Examiner

Christopher T. Schatz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 21 and 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/12/03
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Applicant's election without traverse of claims 1-20 in the reply filed on August 17, 2005 is acknowledged.

#### ***Claim Rejections - 35 USC § 112***

1. Claims 6 and 7 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 recites the language "a plurality of elastic members arranged between the upper and lower chamber units and the upper and lower stages, respectively." The language indicates to examiner that applicant is claiming more than one elastic member between the lower chamber unit and the lower stage and more than one elastic member between the upper chamber unit and the upper stage. Claim 6, however, recites "the plurality of elastic members include at least one elastic member arranged between the upper chamber unit and the upper stage and at least one elastic member arranged between the lower chamber unit and the lower stage."

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 6-14, 19, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Hayafuji et al. (US 2003/0205333).

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device, comprising: a base frame 48; a lower chamber unit mounted to the base frame 13; an upper chamber unit 12 joinable to the lower chamber unit; an upper stage 21 fixed to the upper chamber unit for securing a first substrate 3; a lower stage 43 fixed to the lower chamber unit for securing a second substrate 4; and a plurality of elastic members 31, 30, 49 arranged between the upper and lower chamber units and the upper and lower stages, respectively.

As to claim 2, Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device wherein the upper and lower chamber units are convexly bendable within the substrate bonding apparatus; and the plurality of elastic members exert restoration forces to the upper and lower chamber units (paragraph 0042). As to claim 6, Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device wherein the plurality of elastic members include at least one elastic member 30 arranged between the upper chamber unit and the upper stage and at least one elastic member 49 arranged between the lower chamber unit and the lower stage. As to claim 7, Hayafuji et al. discloses a substrate

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bonding apparatus for manufacturing a liquid crystal display device wherein the plurality of elastic members include at least two elastic members 30 arranged between the upper chamber unit and the upper stage and at least two elastic members 49 arranged between the lower chamber unit and the lower stage Figure 5). As to claim 8, Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device wherein at least one of the upper and lower stages includes: a fixing plate 42 coupled to a corresponding one of the upper and lower chamber units; and a securing plate 11 for securing a corresponding one of the first and second substrates (figure 5). As to claim 9, Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device wherein the plurality of elastic members 30 are arranged between the fixing plate 29 and the upper chamber unit. As to claim 10, Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device wherein the plurality of elastic members 49 are arranged between the fixing plate 42 and the lower chamber unit 13. As to claim 11, Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device wherein the plurality of elastic members are arranged between the fixing plate 42 and the securing plate 11 (figure 5). As to claim 12, Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device further comprising at least one elastic member 31 arranged between the fixing plate 29 and the upper chamber unit. As to claim 13, Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device further comprising at least one elastic member 49 arranged between the fixing plate 42 and the lower chamber unit 13. As to claim 14, Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device wherein the securing plate includes a plurality of electrostatic chucks

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(paragraph 0053). As to claim 19, Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device wherein the plurality of elastic members 30 are arranged between the upper chamber unit 10 and the upper stage 21 (figure 5). As to claim 20, Hayafuji et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device wherein the plurality of elastic members 49 are arranged between the lower chamber unit 13 and the lower stage 43.

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi et al. (JP 2000-284295) in view of Machida et al. '578, and optionally Cram '132.

Satoshi et al. discloses a substrate bonding apparatus for manufacturing a liquid crystal display device comprising a base frame 3; a lower chamber unit 10 mounted to the base frame (paragraph 0013); an upper chamber unit 21 joinable to the lower chamber unit; an upper stage S1 fixed to the upper chamber unit 21 for securing a first substrate 1b; a lower stage T1 fixed to the lower chamber unit for securing a second substrate 1a. The reference is silent as to the presence of elastic members.

Machida et al. discloses a substrate bonding apparatus capable of manufacturing a liquid crystal display device (column 6, lines 45-49) comprising lower and upper parts of chamber 101

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and a lower stage 102a for securing a second substrate, and a plurality of elastic members 108 between the lower portion of the chamber and the lower stage (figure 1). The presence of elastic members between the stage and the chamber is advantageous because, as disclosed by Machida et al., said members create an apparatus capable of applying uniform pressure when pressure is applied to the substrate 103. Such uniform pressure application, when employed in the apparatus of Satoshi, would create an apparatus capable of forming a level, even bond between the two substrates. Although Machida et al. is silent as to the presence of elastic members on the upper part of the apparatus, one of ordinary skill in the art would have readily understood that placement of the elastic members 108 between both the upper chamber and upper stage and lower chamber and lower stage of Satoshi et al. respectively, would maximize the ability of Satoshi's apparatus to apply uniform pressure during bonding, thus creating an apparatus capable of producing a high quality of the bond. Therefore, at the time of the invention it would have been obvious to a person of ordinary skill in the art to arrange a plurality of elastic members between an upper stage and an upper chamber unit and a lower stage and a lower chamber unit respectively as taught by Machida et al. above in the apparatus for manufacturing a liquid crystal display as set forth above by Satoshi et al.

Alternatively, Cram discloses an apparatus capable of manufacturing a liquid crystal display comprising upper and lower chamber units, an upper stage and a lower stage for securing respective substrates, and a plurality of elastic members arranged between the upper and lower chamber units and the upper and lower stages, respectively (see figure). Arranging elastic members between the between the upper and lower chamber units and the upper and lower stages is advantageous because, as disclosed by Cram, said members provide for proper sealing

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of the chamber unit during bonding (column 2, lines 63-66). Therefore, at the time of the invention it would have been obvious to a person of ordinary skill in the art to arrange the elastic members disclosed Cram between the upper and lower chamber units and the upper and lower stages of Satoshi et al.

As to claim 2, Satoshi et al. discloses a substrate bonding apparatus capable of manufacturing a liquid crystal display device wherein the upper and lower chamber units are capable of being convexly bendable (paragraph 0019). Applicant should note that although neither reference explicitly states that the elastic members 108 exert restoration forces on the upper and lower chambers units, the nature of elasticity would have lead one of ordinary skill in the art to understand that elastic members placed between an upper stage and an upper chamber unit and a lower stage and a lower chamber unit respectively, would have been capable of exerting restoration forces to the upper and lower chamber units. As to claim 3, Machida et al. discloses a substrate bonding apparatus capable of manufacturing a liquid crystal display device wherein the plurality of elastic members include a coil spring (figure 1). As to claims 4 and 5, examiner acknowledges that there is not explicit disclosure of a conical or plate spring. However, examiner asserts the use of all three springs is well known. Absent any unexpected result specific to the instant invention one of ordinary skill in the art would have readily recognized to use an initially shaped-conical spring or a plate spring in place of a coil spring. As to claim 6, examiner addressed above why it would have been obvious to one of ordinary skill in the art to arrange at least one elastic member between an upper chamber unit and an upper stage and at least one elastic member between a lower chamber unit and a lower stage. As to claim 7, Machida et al. discloses at least two elastic members. As to claim 8, Satoshi et al. discloses a substrate bonding



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apparatus capable of manufacturing a liquid crystal display device wherein at least one of the upper and lower stages includes: a fixing plate 27 coupled to a corresponding one of the upper and lower chamber units; and a securing plate 28 for securing a corresponding one of the first and second substrates (figure 1). As to claims 9 and 10, examiner asserts that because Machida et al. discloses that the plurality of elastic members are between the stage and the chamber unit (figure 1), and the fixing plate 102b of Machida et al. is further from the stage than from the chamber unit, it would have been obvious to one of ordinary skill in the art to arrange the elastic members disclosed by Machida et al. between the fixing plate and the upper chamber unit and the fixing plate and the lower chamber unit of Satoshi et al. As to claim 11, examiner asserts that one of ordinary skill in the art would have understood to place the elastic members between the fixing plate and the securing plate because doing so would aid in applying even pressure during the bonding process. As to claim 14, Satoshi et al. discloses a substrate bonding apparatus capable of manufacturing a liquid crystal display device wherein the securing plate includes a plurality of electrostatic chucks (paragraph 0021). As to claim 15, one of ordinary skill in the art would have been motivated to place the elastic members in correspondence with the plurality of electrostatic chucks such that that substrate is held in parallel manner to a second substrate during the chucking process. As to claim 19, examiner addressed above why one of ordinary skill in the would have been motivated to place the elastic members 108 of Machida et al. between the upper chamber unit and the upper stage of Satoshi et al. As to claim 20, Machida et al. discloses the plurality of elastic members arranged between a lower chamber section and a lower stage as discussed above.

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6. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi et al. and Machida et al. as applied above, and in further view of Kubota et al. '053.

Satoshi et al. and Machida et al. disclose an apparatus as stated above, but the references are silent as to the securing plate material. Kubota et al. discloses a securing plate capable of being used in a bonding apparatus for a LCD screen (column 1, lines 11-13), and further discloses that said securing plate could be made of stainless steel or aluminum (column 4, lines 56-60). Using steel or aluminum is advantageous because, as disclosed by Kubota et al., doing so, adds to the strength of the securing plate (column 4, lines 55-56). Therefore, at the time of the invention it would have been obvious to a person of ordinary skill in the art to use a securing plate made of stainless steel or aluminum as taught by Kubota et al. above in the bonding apparatus of and Machida et al. Satoshi et al. As to claim 18, although the reference is silent as to an exact thickness for the securing plate, Kubota et al. does disclose that it is advantageous to use a securing plate that has a high thickness to ensure good mechanical strength and proper handling (column 4, lines 49-56). As such, one of ordinary skill in the art would have understood to use a securing plate with a thickness of at least 40mm to ensure good strength and proper handling of the substrate.

### ***Conclusion***

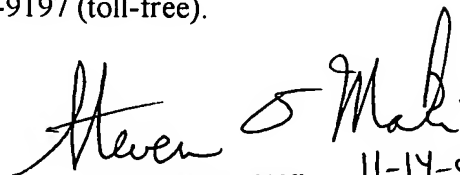
Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Christopher T. Schatz** whose telephone number is **571-272-1456**. The examiner can normally be reached on 10:00-7:30, Monday -Thursday, 10:00-6:30 Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CTS

  
STEVEN D. MAKI  
PRIMARY EXAMINER  
11-14-05